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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,103	03/14/2007	Kelly M. McNagny	7685-102	4592

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EXAMINER	
HALVORSON, MARK	

ART UNIT	PAPER NUMBER
1642	

MAIL DATE	DELIVERY MODE
01/21/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/560,103	MCNAGNY ET AL.	
	Examiner	Art Unit	
	Mark Halvorson	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 November 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *10,12 and 34-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10, 12, and 34-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submissions filed on September 16, 2009 has been entered.

Claims 10, 12, and 34-39 are pending and under examination.

35 USC § 102(e) rejections withdrawn

The rejection of claim 12, under 35 USC 102(b) as being anticipated by Xu et al. (US Patent No: 6.613, 515, issued Sept 2, 2003, filed Aug 15, 2000, previously cited) is withdrawn in view of Applicants amendments to claim 12.

The rejection of claims 12, 35-38 under 35 USC 102(e) as being anticipated by Erlander et al (US Patent Application Publication No: 2004/0002067, published Jan 1, 2004, filed Dec 21, 2001 is withdrawn in view of Applicants arguments and Applicants amendments to claim 12.

35 USC § 102(e) rejections maintained

The rejection of claims 10, 12, 34-38 and new claim 39 under 35 USC 102(b) as being anticipated by Xu et al. (US Patent No: 6.613, 515, issued Sept 2, 2003, filed Aug 15, 2000, previously cited) is maintained.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The claims are drawn to method of detecting cancer, metastatic cancer or progression of cancer in a patient comprising:(a) determining the level of podocalyxin in a sample from the patient; and comparing the level of podocalyxin in the sample to a control sample, wherein increased levels of podocalyxin and as compared to the control indicates that the patient has cancer, wherein determining the level of podocalyxin comprises determining the amount of nucleic acid molecules, wherein the nucleic acid molecules are mRNA, wherein determining the level of podocalyxin comprises determining the amount of protein using an antibody.

Xu et al discloses that podocalyxin is overexpressed in ovarian carcinoma tissues (Table VI) compared to normal ovarian tissue. Xu et al disclose that podocalyxin mRNA may be detected (column 23, line 52 to column 24, line 27) or podocalyxin protein may be detected using an antibody (column 31, line 8 to column 32 line 14). Xu et al disclose the detection of podocalysin to measure the progression of cancer. (column 48-49).

Applicants argue that claim 10 is directed to monitoring progression of cancer and that this claim requires the additional active step of repeating the detection at a later time point for the same patient and comparing the levels.

Applicant arguments have been considered but are not persuasive. Xu et al does describe the use of the cancer markers progression of cancer by repeating the detection step over time. (column 54,lines 48-60).

NEW REJECTIONS: based on amendments:

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 12 and 34-39 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claims are drawn to a method of determining whether or not a cancer is metastatic, comprising:(a) detecting the level of podocalyxin in a sample from the patient; and comparing the level of podocalyxin in the sample to a control sample from on-metastatic cancer, wherein increased levels of podocalyxin and as compared to the control indicates that the cancer is metastatic.

The specification discloses that podocalyxin is expressed by Invasive Breast Carcinoma. (page 42 line 9 to page 43 line 4). The specification also discloses that increased expression of podocalyxin is correlated with a poor outcome. (page 42, Figure 2). The specification then concludes that high expression of podocalyxin is selective to the most metastatic tumors. The specification discloses that sixty-one percent of the invasive breast carcinoma cases exhibited no discernible podocalyxin and twenty-three percent exhibited weak staining. (page 42 lines 14-18). The specification further discloses that eleven percent of the invasive breast carcinoma cases exhibited a mixture of weak and intense membrane staining (page 42 lines 18-20, Figure 1E). The specification discloses that the three groups could not be distinguished from each other on the basis of clinical outcome. (page 42, lines 20-24). No comparison of the expression of podocalyxin was made between patients with metastatic cancer and patients with non-metastatic cancer.

One cannot extrapolate the teaching of the specification to the enablement of the claims because the specification does not provide examples or guidance for determining whether higher levels of expression of podocalyxin is correlated with metastasis. The specification only demonstrates that the podocalyxin is expressed by invasive breast carcinoma and that increased expression of podocalyxin in five percent of the patient samples is correlated with a poor outcome. There are no examples demonstrating that metastasis is correlated with the expression of podocalyxin. The specification does not provide a nexus between metastasis and the expression levels of podocalyxin.

Tockman et al (Cancer Res., 1992, 52:2711s-2718s, cited previously) teach considerations necessary in bringing a cancer biomarker to successful clinical application. Although the reference is drawn to biomarkers for early lung cancer detection, the basic principles taught are clearly applicable to other oncogenic disorders and associated markers such as podocalyxin. Tockman et al teach that prior to the successful application of newly described markers, research must validate the markers against acknowledged disease end points, establish quantitative criteria for marker presence/absence and confirm marker predictive value in prospective population trials (see abstract). Early stage markers of carcinogenesis have clear biological plausibility as markers of preclinical cancer and **if validated** can be used for population screening (p. 2713s, col 1). The reference further teaches that once selected, the sensitivity and specificity of the biomarker must be validated to a known (histology/cytology-confirmed) cancer outcome. The essential element of the validation of an early detection marker is the ability to test the marker on clinical material obtained from subjects monitored in advance of clinical cancer and *link* those marker results with subsequent histological confirmation of disease. This irrefutable link between antecedent marker and subsequent acknowledged disease is the essence of a valid intermediate end point marker (p. 2714, see Biomarker Validation against Acknowledged Disease End Points). Clearly, prior to the successful application of newly described markers, markers must be validated against acknowledged disease end points and the marker predictive value must be confirmed in prospective population trials (p. 2716s, col 2).

Furthermore, claims 12 and 35-39 encompass a method of determining whether or not any cancer is metastatic. The specification only discloses the expression of podocalyxin in invasive breast cancer tissues.

Given the disclosure of the specification and the teaching in the art that indicates the requirements for biomarkers that demonstrate a correlation with the expression of podocalyxin and metastasis, one skilled in the art could not predictably determine whether or not metastasis of the tumor occurred by determining the expression of podocalyxin in the patient sample. Applicants have not supplied any evidence that the expression of podocalyxin was indicative of metastasis. The specification also discloses that increased expression of podocalyxin in invasive breast cancer from five percent of patients is correlated with a poor outcome.

Therefore, in view of the breadth of the claims, lack of guidance in the specification, the absence of working examples, and the state of the art, it would require undue experimentation for one skilled in the art to practice the invention as broadly claimed.

Summary

Claims 10, 12, and 34-39 stand rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Halvorson whose telephone number is (571) 272-6539. The examiner can normally be reached on Monday through Friday from 8:30am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Helms, can be reached at (571) 272-0832. The fax phone number for this Art Unit is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Mark Halvorson/
Examiner, Art Unit 1642